Attorney Docket No. 0756-0945

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Group Art Unit: 1792
Hisato Shinohara et al.	)	Examiner: Marianne L. Padgett
Serial No. 08/169,127	)	CERTIFICATE OF MAILING
Filed: December 20, 1993	)	I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 20, 2009.
For: LASER IRRADIATION METHOD	)	
	)	
	)	Adele M Stamper

REPLY BRIEF

Mail Stop Appeal Brief - Patents
Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The *Examiner's Answer* mailed February 20, 2009, has been received and its contents carefully noted. This response is filed within one month of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Appellant respectfully submits that this response is being timely filed.[1]

At issue in the present appeal is whether the recitation of "removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer" in independent claims 61, 71 and 151, and in dependent claims 144 and 168 is definite under 35 U.S.C. § 112, second paragraph, and whether these claims satisfy the written description and enablement requirements under 35 U.S.C. § 112, first paragraph. Although numerous dependent claims are provided in the list of rejected

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[1] The present *Reply Brief* is filed by the undersigned acting in a representative capacity under 37 C.F.R. § 1.34. This procedure was confirmed in telephone conversations conducted with Dale M. Shaw of the Board of Patent Appeals and Interferences and Richard J. McGrath of the Office of Enrollment and Discipline on April 14 and 15, 2009.

claims under § 112, it is noted that the feature of concern is only recited in claims 61, 71, 144, 151 and 168.[2]

The claims of the subject application meet the requirements of 35 U.S.C. § 112, second paragraph. The touchstone of any rejection under this section is whether the "language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement." MPEP § 2173.02, citing Morton Int'l, Inc. v. Cardinal Chem. Co., 5 F.3d 1464, 1470, 28 USPQ2d 1190, 1195 (Fed. Cir. 1993). As stated by the Federal Circuit as recently as 2004, "The requirement to 'distinctly' claim means that the claim must have a meaning discernible to one of ordinary skill in the art when construed according to correct principles .... Only when a claim remains insolubly ambiguous without a discernible meaning after all reasonable attempts at construction must a court declare it indefinite." Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1366, 71 USPQ2d 1081, 1089 (Fed. Cir. 2004) (quoted with approval in MPEP § 2173.02).

The only feature of the claims that appears to be at issue is the recitation of "removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer" in claims 61, 71, 144, 151 and 168. There appears to be no argument that each word of this limitation would have a readily understood meaning. Furthermore, the meaning of this limitation, when read in context, is readily understood not only to a person of ordinary skill in the art, but in fact can be clearly understood from the plain meaning of the expression. The limitation requires that an insulating layer that includes silicon oxide be removed from an upper surface of the claimed crystallized semiconductor layer.

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[2] Also, although dependent claims 155-163, 166, 167 and 173-175 are cited in the asserted rejections, it is noted that these claims are multiple dependent claims. As such, the asserted rejections under § 112 appear to only apply to the above-referenced dependent claims as they depend from 61, 71 and 151, and claim 157 should not be included in the list of rejected claims under § 112. In other words, it does not appear that the § 112 rejections should apply to dependent claims 155, 156, 158-163, 166, 167 and 173-175 as they depend from independent claims 66, 76, 140, 141, 152-154, 164 and 165.

There is no doubt that a person of ordinary skill in the art could interpret the metes and bounds of this limitation so as to understand how to avoid infringement and that the limitation has a meaning discernible to one of ordinary skill in the art when construed according to correct principles. This is the standard supported by the Federal Circuit and the law.

The *Answer* states: "it is unclear from the claim language where this silicon oxide layer comes from, since it was never claimed to be deposited" (page 4). It is true that the claim does not recite deposition of the insulating layer comprising silicon oxide, but that does not make the claim indefinite or unclear. The *Answer* attempts to characterize the claim as indefinite since it fails to recite the deposition of the insulating layer. The recitation of detailed limitations disclosed in the preferred embodiment of the specification, however, is not required provided the feature is, as here, otherwise clear. The claim intentionally omits this feature, is intended to broadly claim the invention with respect to this feature, and is abundantly clear that the source of the silicon oxide is not a critical feature of the claimed invention. In this regard, it is helpful to remember that the breadth of a claim is not the same as indefiniteness. See MPEP § 2173.04 and In re Miller, 441 F.2d 689, 169 USPQ 597 (CCPA 1971).

The *Answer* next inquires: "It also leaves the claim open to speculation, since this insulating layer was not necessarily present when irradiation occurred, did the irradiation while crystallizing the semiconductor layer, also cause surface oxidation, or was it deposited before, thus affecting the irradiation process, etc?" (page 4). However, such rumination is unnecessary to determine with clarity the metes and bounds of the claim limitation. The claim requires removal of an insulating layer comprising silicon oxide. It does not require detailed recitation about the source of this layer. This is not unclear, but rather is broad, and breadth is not indefiniteness. It does not "leave the claim open to speculation" any more than any claim that does not recite each and every

feature of the preferred embodiment is "open to speculation" and, even if it may be "open to speculation" this is not the legal standard for indefiniteness.[3]

In the Response to Argument on page 8, the *Answer* mischaracterizes Appellant's position. The *Answer* states "it appears to be [Appellant's] position that as long as the specification discusses a specific layer, that they do not have to clearly claim the deposition of that layer when discussing a deposition sequence and treatment of other deposited layers, in order to remove the previously non-claimed layer." This mischaracterizes the Appellant's position. The Appellant's position is that the metes and bounds of the disputed claim limitation are clear and in accord with the standards set forth by the Federal Circuit. There is no nexus in the Appellant's argument (on indefiniteness) between what the specification discusses and what is required to be claimed since, in fact, any such argument only serves to obfuscate the issue at hand – whether "the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement." It is particularly egregious to try and assert that the Appellant's position is that "they do not have to clearly claim the deposition of that layer" since this attempts to imply that the Appellant is somehow taking a position that the claim need not be clear. It is Appellant's position that the deposition of the layer need not be claimed, clearly or otherwise. It is not the Appellant's position that the deposition of the layer must be claimed, but that it need not be done clearly.

The *Answer* further states the following:

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[3] See claim 48 of U.S. Patent No. 7,250,196, handled by the same examiner as the subject application, for example, which recites "The method of claim 1, further comprising: cleaning the substrate to remove foreign materials and oils." The same arguments asserted in the subject application apply with the same or nearly the same force to this issued, and presumed valid, claim. One could "speculate" as to whether the foreign materials and oils were present when the process of claim 1 was performed or did they result from the process recited in claim 1? Or, one could argue that it is unclear where the "foreign materials and oils" come from since the source of these foreign materials and oils was never claimed. In fact, claim 48 of the '196 patent meets the legal standard for definiteness just the same as the claims of the subject application.

> The fact that the specification discloses & supports deposition of the insulating layer in a specific location in a specific deposition sequence, does not mean that the claims must be read to deposit this layer, if deposition of it is never claimed, just the removal of the a [sic] silicon oxide insulating layer, which may or may not be what was discussed in the specification, i.e. the specification does not define all insulating layers comprising silicon oxide to be to be [sic] the specific layer in the specific position of the particular example in the specification, so it would not be proper to read the claims, as written, as if such was the only option.

To the extent that the *Answer* asserts that unclaimed limitations from the specification should not be read into the claims, the Appellant agrees and supports this position. But, this in no way renders the claim unclear or indefinite. To be certain, the scope of the claims on appeal should not be limited to the specifically claimed embodiments disclosed in the specification and are intended to broadly cover the removal of any insulating layer comprising silicon oxide from an upper surface of a crystallized semiconductor layer. The preferred embodiment gives one such example of an insulating layer comprising silicon oxide that could be removed in accordance with the present invention, but the claims should not be limited to this specific example. Nevertheless, this is not germane to the issue at hand – whether the claims are definite. The *Answer* appears to try and build on the fallacious assumption that the claim, to be definite, must somehow recite the formation of the insulating layer comprising silicon oxide, and then attacks this untenable position on the basis that this limitation cannot be read into the claims from the specification.

The attempts in the *Answer* to try and hypothesize imaginary features of the invention that may or may not exist, obscures the proper focus of an inquiry under 35 U.S.C. § 112, second paragraph. As stated by the Federal Circuit and discussed in the MPEP, the test should be whether the language of the claim is such that a person of ordinary skill in the art can interpret the metes and bounds of the claim so as to understand how to avoid infringement. The claims of the subject application undoubtedly meet this test and reversal of the rejection is respectfully requested.

The claims of the subject application meet the requirements of 35 U.S.C. § 112, first paragraph, including the written description and enablement requirements. The *Examiner's Answer* asserts that "[t]he claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention" (page 4). The Appellant respectfully disagrees and traverses the assertions in the Official Action.

Claims 61, 71, 144, 151 and 168 recite "removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer," which is literally supported at page 12, line 1. Rather than focusing on support for the positively recited features of claims 61, 71, 144, 151 and 168, the *Answer* appears to speculate as to features that might occur within the scope of these claims and demands a written description for each hypothetical feature. The Appellant respectfully submits that it is wholly inappropriate to extend the written description requirement to include all possible variations that fall within the scope of a given claim. Rather, "the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed" (MPEP § 2163.02, citing, e.g. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991)). The Applicant respectfully submits that the specification does, in fact, convey with reasonable clarity to those skilled in the art that, as of the filing date sought, Appellants were in possession of the invention as now claimed.

One exemplary embodiment of "removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer" is literally and unambiguously described in the present specification, for example, at page 10, line 27, to page 11, line 1, which discloses that "the semiconductor layer is covered by an insulating layer 59 made of silicon oxide" (emphasis added), at page 11, lines 3-6, which discloses that "the semiconductor layer 52 and the insulating layer 59 are

simultaneously patterned ... in order to form a plurality of semiconductor islands 58 covered by the insulating layer," at page 11, lines 12-13, which discloses that "a laser crystallization in accordance with the present invention is performed to the patterned semiconductor layer," and at page 12, lines 1, which discloses that "the insulator 59 is etched off."

The specification provides an example of a step of removing an insulating layer 59 comprising silicon oxide from an upper surface of the crystallized semiconductor layer 52. However, it is noted that the claims do not recite or require that the insulating layer be formed, only that an insulating layer comprising silicon oxide on an upper surface of a crystallized semiconductor layer be removed. Such variation from the precise embodiment described in the specification and illustrated in Figure 7 is within the scope of the present invention. Indeed, the specification indicates that "[w]hile several embodiments have been specifically described, it is to be appreciated that the present invention is not limited to the particular examples described and that modifications and variations can be made without departure from the scope of the invention as defined by the append[ed] claims" (page 12, line 24, to page 13, line 2).

Also, as noted in MPEP § 2163, in order to comply with the written description requirement of 35 U.S.C. § 112, first paragraph, each claim limitation must be expressly, implicitly, or inherently supported in the originally filed disclosure. The present specification literally supports removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer. Also, although the Appellant is not relying on implicit or inherent support, the present specification implicitly and inherently supports any variations of the claimed invention that one of ordinary skill might reasonably glean from the Applicant's disclosure. Therefore, the claims satisfy the written description requirement.

Claims 61-65 and 71-75 are enabled under 35 U.S.C. § 112, first paragraph. The *Examiner's Answer* concedes that the specification is "enabling for an insulating layer of silicon oxide or silicon nitride having a thickness of 200-1500 Angstroms

deposited before the irradiation step, where the irradiation crystallization process is performed with the insulating layer covering the semiconductor layer being crystallized, and where this insulating layer is removed (etched) after irradiation before proceeding with further processing steps" (page 5). However, the statement in the *Answer* is narrower than the scope of claims 61 and 71. Claims 61 and 71 do not recite or require the claimed thickness, that the insulating layer be "deposited," or that the irradiation be performed with an insulating layer covering a semiconductor layer. Rather, claims 61 and 71 merely recite that the removing step be performed to an insulating layer that exists on an upper surface of the crystallized semiconductor layer. The *Answer* asserts that the specification "does not reasonably provide enablement for removal of 'an insulating layer comprising silicon oxide' from an unknown source in an uncertain relationship to the irradiation step itself" (Id.). Again, the *Answer* contemplates "an unknown source in an uncertain relationship to the irradiation step itself," which is believed inappropriate. The Applicant respectfully disagrees and traverses the assertions in the Official Action.

The *Answer* appears to employ enablement standards that are significantly higher than what is required by the law. Initially, it is noted that the scope of enablement must only bear a "reasonable correlation" to the scope of the claims. See MPEP 2164.04 citing In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). Also, the subject matter of a claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement (MPEP § 2163.02). The claims clearly recite removal of an insulating layer comprising silicon oxide from an upper surface of a crystallized semiconductor layer. The claims do not recite that the insulating layer be from an "unknown source" or have an "uncertain relationship to the irradiation step itself." One of ordinary skill would, upon reading the claim and present specification, understand that there are various manners in which an insulating layer comprising silicon oxide would occur on an upper surface of a crystallized semiconductor layer and recognize that the present invention discloses a

method for removing such insulating layer. Within the scope of enablement is what one of ordinary skill would have reasonably correlated from the present specification, and the Applicant respectfully submits that the scope of enablement includes "removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer," regardless of the source of the insulating layer.

Also, MPEP § 2164.08 notes the following (emphasis added): "The determination of the propriety of a rejection based upon the scope of a claim relative to the scope of the enablement involves two stages of inquiry. The first is to determine how broad the claim is with respect to the disclosure. The entire claim must be considered. The second inquiry is to determine if one skilled in the art is enabled to make and use the entire scope of the claimed invention without undue experimentation." The *Answer* fails to address the undue experimentation factors, a critical factor in establishing a rejection based on alleged lack of enablement. Claims 61 and 71 recite removal of an insulating layer from an upper surface of a crystallized semiconductor layer. The Applicant respectfully submits that it would not require undue experimentation to understand that the present invention supports and enables removal of any insulating layer comprising silicon oxide from an upper surface of a crystallized semiconductor layer.

Further, it bears noting that several of the examples of non-enabled claims provided in MPEP § 2164.08 involve relatively complicated and unpredictable biotechnology and chemical cases. For example, in *In re Goodman*, 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed. Cir. 1993), the claims were determined to be non-enabled since the claims were directed to producing mammalian peptides in plant cells, and "that extensive experimentation would have been required for encoding mammalian peptide into a monocot plant at the time of filing." In contrast, in the present application, there are no such issues of predictability and experimentation. Namely, one of ordinary skill in the art, upon review of the present disclosure, can predictably practice removal of

any insulating layer comprising silicon oxide from an upper surface of a crystallized semiconductor layer.

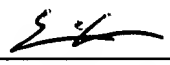
Still further, a rejection of claims as broader than the enabling disclosure is generally not appropriate if one skilled in the art could readily determine any one of the claimed embodiments (MPEP § 2164.08). In the present application, one skilled in the art could readily determine any one of the variations that might be included in the general recitation of "removing an insulating layer comprising silicon oxide from an upper surface of the crystallized semiconductor layer." The specification explicitly discloses that "the semiconductor layer is covered by an insulating layer 59 made of silicon oxide" (page 11, lines 3-6) and that "the insulator 59 is etched off" (page 12, line 1). Based on these disclosures, the Applicant respectfully submits that one of ordinary skill could readily determine that variations of the exemplary embodiment would reasonably include removal of any insulating layer comprising silicon oxide from an upper surface of a crystallized semiconductor layer. Therefore, it is respectfully submitted that the enablement rejection in the *Answer* is not appropriate.

It is respectfully submitted that the present claims particularly point out and distinctly claim the subject matter which applicant regards as the invention and are definite; that the specification of the subject application clearly constitutes an adequate written description of the claimed invention, when properly construed; and that the invention that one skilled in the art is enabled to make and use is that defined by the present claims.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112 are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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